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## BOOK REVIEWS

*Die Vorgeschichte des Menschen.* Von G. SCHWALBE. *Mit einer Figurentafel.* Braunschweig: Friedrich Vieweg und Sohn, 1904. 8°, 52 pp.

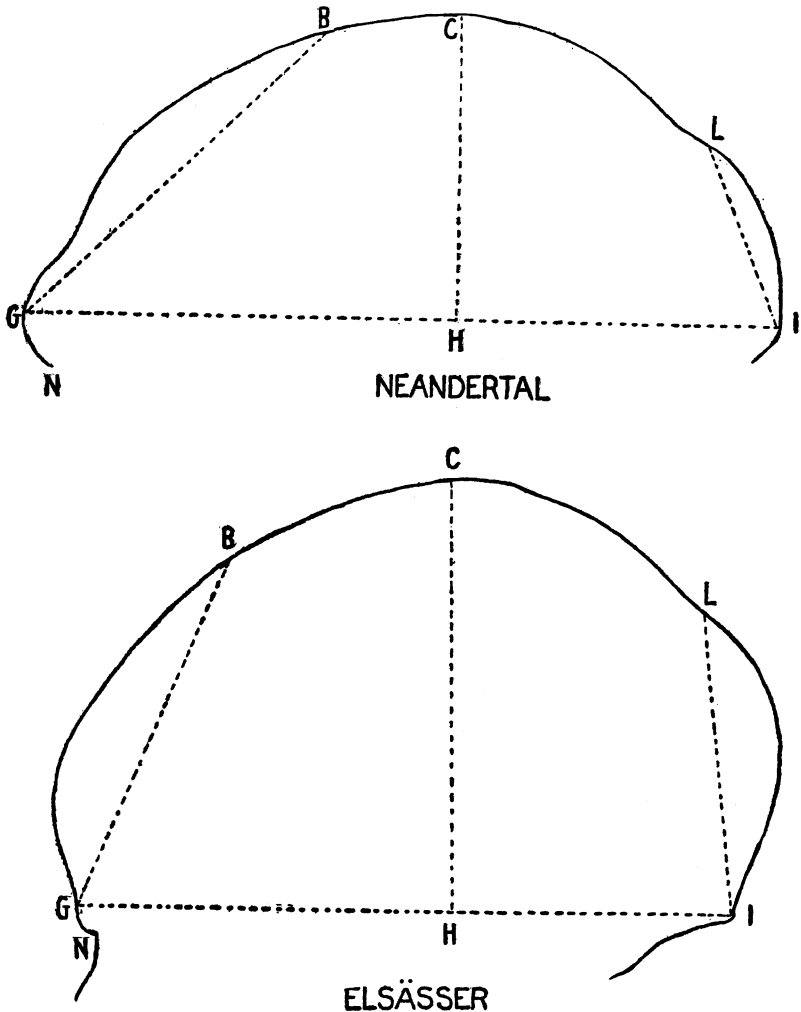
Professor Schwalbe's recent papers on the prehistoric races of Europe, as well as on *Pithecanthropus erectus*, have been received with general favor. Few living writers are so well prepared to treat the subject from the anatomical standpoint.

Schwalbe recognizes that there are at least two types of Paleolithic man, and proceeds to devote his attention to the oldest and most primitive one, viz., that of which the remains from Neandertal and Spy are representative. Various names have been proposed for this early race, as Neandertal, Spy, and Canstatt, the latter being the choice of de Quatrefages and Hamy. King, an Irish writer, considered diluvial man as a species apart, to which he applied the name *Homo Neandertalensis*. Sir John Evans has suggested *Homo incipiens* as opposed to *sapiens*. Schwalbe prefers the appellation *Homo primigenius* to all others, thus recognizing with King that specific differences separate this early type from all succeeding human types, as well as from the apes. These differences are made strikingly evident by comparison of the cranial caps in Macacus, Chimpanzee, Pithecanthropus, Neandertal, and a modern Alsatian. The reviewer reproduces (figs. 4, 5) the last two figures used by Schwalbe.

The profile curve from the nasion (N) to the inion (I) brings out the relative flatness of the Neandertal skull. From c, the highest point of the skull, line CH is drawn perpendicular to line GI, which connects the glabella with the inion. The ratio of CH to GI is much greater in the modern races than in the Neandertal, being 40.4 in the latter and 52 in the lowest types of recent man. Another striking difference is the retreating forehead of *Homo primigenius*. This may be determined by measuring the angle which the straight line drawn from bregma (B) to glabella makes with the base-line GI. In the Neandertal skull the angle BGI is only 44°, while in *Homo sapiens* it never falls below 55°. The lambda angle LIG measures from 78° to 85° in recent man, while it is only 66° in the Neandertal specimen.

An increase in the size of the bregma- and lambda-angles would of course mean a marked increase in the length of the medial, cranial curve GBCLI. In respect to the relative length of this curve the Neandertal skull

resembles the ape skull more closely than it does that of recent man. In the latter, the median curve is greater than any curve not in a median line, and connecting the glabella with the inion. In the apes and the



FIGS. 4, 5.—Comparison of the Neandertal cranial cap with that of a modern Alsatian.

Neandertal race, the median curve is shorter than the curve passing over the upper margin of the temporal bone (*Schläfenbeinrand*). These two curves on the Neandertal skull are of about equal length. The discovery

of two almost complete diluvial skeletons in a cavern at Spy, Belgium, has made it possible to compare the face- and jaw-bones, as well as the extremities of this race, with those of living races. But the specific differences are not so great in the long-bones as in cranium and lower jaw. These differences alone are sufficient to separate early diluvial man specifically from all succeeding races and to justify, in the opinion of Schwalbe, the name *Homo primigenius*.

From the species *Homo primigenius*, Schwalbe excludes the skull fragments of Egisheim, Tilbury, Denise, Brünn, Predmost, and some others. But the human remains recently taken from a Krapina rock-shelter in Croatia, he classes with those of Neandertal, Spy, La Naulette, Arcy, Malarnaud, Schipka, and Taubach. The remains of *Homo primigenius* have thus far been found only in Europe. The Calaveras and Lansing skulls have nothing in common with the primigenius type.

Osteological remains of an earlier human race than the Neandertal (*Homo primigenius*) have not yet been found. But there are evidences sufficient to prove to the satisfaction of many observers, the presence in Europe of a Tertiary, tool-using progenitor of man. In this connection, special importance attaches to the remains of *Pithecanthropus erectus*, found by Eugène Dubois, near Trinil, Java.

In his comparison of man with living and fossil apes, the author concludes that all the links in the phylogenetic chain connecting *Dryopithecus fontani* (Miocene) with *Homo primigenius* (Quaternary) have not yet been discovered. The chief physical differences are due to the erect posture and the consequent cerebral development. Cunningham's recent investigations of right- and left-handedness show distinctly that the differentiation of the human hand antedates the formation of the center of articulate speech.

The changes in the lower extremities must have kept pace with those of the upper; so that one is not surprised to find *Pithecanthropus erectus* with a femur resembling closely that of man, but with a skull rather like that of the anthropoids. The biped series, then, begins with *Pithecanthropus* and the Pliocene period. It is, however, not necessary to suppose that *Homo primigenius* of the lower Quaternary is in the direct line of descent from *Pithecanthropus*. A contemporary of the latter would answer every purpose as progenitor of man.

Schwalbe's chief contribution to the literature on this subject is in calling attention to the line of cleavage separating the early Paleolithic race from *Homo sapiens* which first appeared in later Paleolithic times and to which belong all subsequent races, both prehistoric and historic.

GEORGE GRANT MACCURDY.